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From the children's consultation (Chief Ye. Ya. Yufa) of the 4th medical society of L'vov (Chief doctor T. Ye. Lifanov)

Climatic conditions influence the physical development of children and their morbidity.

In the present preliminary report we intend to dwell only upon some indices of physical development of children during the first year of life, having connected this data with problems of the care of children.

The climate of the L'vov oblast' is continental. The basic characteristics of the climate are: sufficient moisture on the average for the year, a relatively mild, warm fall and a prolonged spring. In the winter, south-west and west winds predominate, in the summer — west and north-west winds. The south-west current of the moist Atlantic air determines the mildness of the climate. In L'vov there are observed a deficiency of sunshine and an irregularity of distribution of the sun's radiation through the seasons of the year. In a comparison of the data concerning the period of sunshine in L'vov it is seen, that other things being equal, the period of sunshine here is shorter, than at other points, located in the same latitude. The topographic situation of the city also partially contributes to this. In the winter the replacing of high temperature with low temperatures is characteristic; a high relative humidity is maintained.

In the spring the amount of rainfall exceeds the winter rainfall by 1½ times, in the summer there occurs a large amount of precipitation, often in the form of cloudbursts (table 1).

Table 1

Meteorological data[1]	L'vov	Kiev	Moscow
Height above sea level in meters	310	180	170
Average temperature:			
a) January	-4,0	-6,0	-10,8
b) July	18,7	19,3	18,0
c) Annual	7,6	6,9	3,6
Annual quantity of precipitation in millimeters	690	590	620
Amount of precipitation in millimeters			
a) from November through March	100-150	150-200	150-200
b) from April through October	400-500	400-500	400-500
Atmospheric pressure in millimeters of mercury column	768	758	760
Depth of snow cover in centimeters	10-30	10-30	10-30

[1] Data of the L'vov Meteorological Observatory

Regularity of observation is basic in the prophylactic work of children's consultations (F. D. Turova). The organization of proper, continuous observation of children during the first year of life, the systematic control of the physical development by means of regular weighing and measurement, careful supervision of the character of the rearing and the characteristics of the development of the children, an expansion of the sanitary-education work with mothers — all of these factors are positively reflected not only in the qualitative indices of care, but also in the indices of the physical development of the children.

During 1957 there were 680 children during the first year of life and 546 — from 1 to 2 years of age under observation of the children's consultation.

By age they were distributed in the following manner: up to 1 month there were 58, from 1 to 3 months — 126, from 3 to 6 months — 167, from 6 months to 1 year — 329, from 1 year to 2 years — 546. The children were under the observation of the consultation on the whole during the first 2-3 days after discharge from the obstetrics department.

The initial examination of the doctor was carried out: on the first day for 296 newborns, on the 2nd or 3rd day for 381, after the 3rd day for 22, after the 10th day for 15. Examinations after the 3rd day are explained by tardy and incorrect information from the obstetric departments.

The birth rate by months on the whole was evenly distributed with a small increase in January and May: in January there were 72 births, in February - 55, in March — 63, in April — 62, in May — 78, in June — 63, in July — 54, in August — 66, in September — 54, in October — 41, in November — 52, in December — 55; the total for the year was 714 births.

Newborns with good weight were discharged from the obstetric department: up to 2000 grams - 7 newborns, from 2000 to 2500 grams - 15, from 2500 to 3000 grams - 89, from 3000 to 3500 grams - 272, above 3500 grams - 241 newborns. On the average tht newborns weighed: boys - 3426 grams, girls - 3358 grams.

V. I. Molchanov, Yu. F. Dombrovskaya, D. D. Lebedev believe that the original weight of the newborns is doubled in the middle or towards the end of the 6th month, and tripled - by the end of the first year. A. F. Tur notes, that actually the increase of weight in infants is not at all always characterized by regularity, and quite significant deviations from the average norms are possible, depending upon the individual characteristics of the infant itself and a number of external factors.

All children were measured, with the exception of the premature infants, twins, and children with hypotrophy of the second stage (table 2).

Table 2.

Average Increase in Height and Length During the First 3 Months of Life

Increase	Weight in grams			Length in centimeters		
	by 1 month	by 2 months	by 3 months	by 1 month	by 2 months	by 3 months
Boys	650	971	820	3,3	4,2	3,7
Girls	600	827	781	3,1	3,6	3,3

In L'vov by 4-5 months children double their weight. Boys triple their weight by 1 year, girls — somewhat after 1 year. This data indicates the good dynamics of the physical development of infants in the climatic conditions of L'vov, exceeding the norms of Orlov (in Moscow, 1938) and not essentially differing from the data of R. Kogan (in Moscow, 1957).

According to the data of R. Kogan, the weight of newborns in Moscow in 1956 equalled for boys 3494 grams, for girls — 3348 grams, an increase in weight and length in the first month is for boys 594 grams and 3.4 centimeters, for girls — 528 grams and 3 centimeters. According to the data of R. Kogan, the greatest increase in weight and length is noted in the 2nd month of life. From the 3rd month the increase decreases. Children double their

weight between the 4th and 5th months, and triple it by the 1st year. The increase in the 2nd year, according to our data, equals for boys — 2198 grams, for girls - 2365 grams. The average increase in length during the 2nd year of life for boys is 10.3 centimeters, for girls - 10.8 centimeters.

During the time of the research, 3 sets of twins were born. The average weight of the infant of twin births was 2425 grams.

Some of the infants were discharged with some pathology from the obstetrics department. For example under observation of the consultation there were 35 newborns with diseases of the skin and the umbilicus, 17 with various birth injuries, 3 with congenital deformities, 6 with catarrh of the upper respiratory organs, one infant with melena of newborns. This indicates that sometimes in the maternity departments there is permitted early discharge of newborns, which subsequently may cause a high morbidity and death rate in comparison with healthy newborns.

Constant observation of children, carried out by district pediatricians and nurses, consisted of monthly visits of all children of the age up to 1 year. Children from 1 to 2 years were observed one time per quarter.

At the age up to 3 months, and also for children suffering from hypotrophy, rickets, for prematures, for twins there were established examinations 2 times per month, which was justified in practice. At the age up to 1 month for each child there were 1.5 medical examinations and 2.4 nurse's examinations, at the age from 1 to 3 months — 2.2 medical and 2.8 nurse's examinations each month, at the age from 3 months to 1 year — 1.3 medical and 1.4 nurse's examinations. At the age from 1 year to 2 years for each child there were 4.2 medical examinations per year. This data does not include doctors' and nurses' visits in connection with prophylactic inoculations and visits to sick children.

Visits to the children's consultation by healthy children for prophylactic examination and medical advice amounted to 7-8 visits per year per one child, and at the age up to 2 years — 2-3 visits.

The morbidity of rickets of the first stage amounted to 3.5%, of the second stage amounted to 1.75%. The morbidity of hypotrophy of the first degree during 1957 amounted to 0.9%.

The infants were given juices from the age of 1½-2 months, were given prophylactically vitamin D_2 (alcoholic solution) from the age of 2 months, 5 drops 2 times per day for 2 weeks. In individual cases the giving of vitamin D_2 was extended over longer periods. A large amount of vitamin C (in the form of juices and ascorbic acid) was recommended for the children, especially for children with hypotrophy.

M. Piotropawlowska, Z. Gornicka, H. Sliwinska note that children with hypotrophy have the lowest levels of vitamin C in blood serum (according to the Kaydi method). The use of the

conventional doses of vitamin C (6-20 milligrams per 1 kilogram of weight) in the majority of cases does not give a corresponding increase of the level in the blood serum.

Plenert indicates the great importance of polyvitamins in the development of healthy children of infant age. With the use of polyvitamins, the morbidity of diseases of the respiratory organs decreases; a somewhat large gain in weight and a better general development are observed.

The leading place in the work of the district doctors was held by propaganda of breast feeding. 85.4% of the children were on breast feeding, 7.4% of the children received early supplementary feeding (up to 3 months), 7.2% were on artificial feeding. Children were placed on early supplementary feeding in view of the mother's hypolactation or in connection with the characteristics of the mother's work. Children were placed on artificial feeding when they manifested counterindications to breast milk (serious and persistent manifestations of exudative diathesis, erythroderma, and in diseases of the mother, which prevent breast feeding.

At the VII Congress of pediatricians it was noted, that for artificial feeding and supplementary feeding of infants, cow's milk and mixtures prepared from it should be considered the basic and most full-valued product. The feeding of children, who were on artificial and mixed feeding, was carried out through a milk-distributing center, which is supplied with physiological and medical mixtures from the urban milk kitchen. However it should be noted that the average daily gain in weight during feeding with sterilized milk is lower than during feeding with pasteurized milk (S. Johims).

The district pediatrician established the regime of the child and introduces correctives in his feeding by determining and adjusting the proportions of nutritive ingredients. The correctives are introduced in accordance with the weight and condition of the child at the present time, and the weight and length at birth are also taken into consideration. A study of the materials on breast feeding permitted F. M. Ilupina to demonstrate, that almost all mothers are capable of breast feeding their children. L. Barness, D. Baker, P. Libert, F. Torres, P. Gyorgi, studying the metabolism of nitrogen in newborns, fed with cow's milk and breast milk, indicated that the protein of breast milk is better assimilated. According to their opinion, this depends upon the better absorption of the proteins of breast milk, and not upon the metabolism of the proteins.

On analysis of infant death rate in 1957 it is seen, that it decreased by 54% in comparison with 1956, and in infants up to 1 year — by 72%. Health-education propaganda assumed the most diverse forms, including a school for mothers and a correspondence course for mothers, lectures by the doctor and the nurses upon the mother's visit to the consultation, lectures in the district, and

also lectures on children's diseases, concerning errors in the care of the children. Analysis of the results of the work indicated, that the improvement of the health-education work with parents influenced certain general indices of the work of the consultation. The index of visits to the consultation by mothers with healthy children increased; the index of home visits by the doctor to healthy children increased; the number of children, on early supplementary feeding (during the weaning period), as well as the number of children, suffering from rickets and hypotrophy, decreased. Although the majority of mothers has experience in the care of children and are acquainted with health-education literature, nonetheless pediatricians and nurses, visiting an infant after discharge from the maternity department, should help the mother create the proper hygienic care, and consolidate the sanitation-hygienic knowledge, which she had acquired in the maternity department.

Conclusions

1. In the physical development of the children of L'vov, in spite of certain characteristics of the climate, under the condition of proper feeding and systematic observation, there is no essential difference in comparison with analogous data in Moscow.

2. The maximum increase in weight and length of the children is observed in the second month of life, and a doubling of weight between the 4th and 5th months, which corresponds to the data of the Institute of Pediatrics of the Academy of Medical Sciences of the USSR.

3. Natural feeding of the children during the first half year of life should remain the basic condition for proper feeding. In the prophylactic work of the children's consultation, the struggle for breast feeding should have the leading position.

4. Vitamin C should be prescribed from the age of 1½-2 months in the form of juices and ascorbic acid, which is important for the prophylaxis of hypotrophies and is the necessary means for the proper physical development of the child.

5. For the improvement of the service for children during the first year of life there is no necessity to increase the number of prophylactic examinations by the doctor and the nurse. The problem consists of raising the active effect of the medical worker upon the care of the child.

6. The climate of L'vov is characterized by completely satisfactory qualities in the sanitation-hygienic respect.

7. The good physical development of children during the first year of life in the conditions of the climate of L'vov indicates the increased material-cultural level of the workers and may serve as a criterion of the measures for the improvement of the health of the children's population.

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